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of the material assembled from other investigations, as well as for the data reported from the tests given by the author himself.

The preparation of test material.—A new series of diagnostic tests¹ for the fundamentals of first-year algebra differs in certain important features from the standardized scales now in use. The fundamentals for which these tests were constructed were determined by means of a questionnaire sent to college and secondary-school instructors. From the results of the tabulation, the four processes most frequently reported were selected for the tests designated as Series A. The fundamentals thus determined were (1) collection of terms, (2) multiplication, (3) division, and (4) solution of the simple equation.

In selecting test material the writer adapted certain problems from the better texts. These exercises involve different combinations of steps in each process and represent various degrees of difficulty, thus giving opportunity for diagnosis and at the same time for differentiation of degrees of ability. Mr. Douglass says that "it is in this arrangement that the tests under discussion have a distinct and important advantage over other tests for measuring algebraic ability or progress" (p. 13). An examination of the tests shows a greater variety of types of exercises than in those scales which he criticizes on this point, but it is apparent that one or two problems of a particular type are not a sufficient basis for a careful diagnosis. For example, the failure of a pupil on problem 4 of test 1, would not necessarily mean that he was weak in this particular type of subtraction. If he failed on several similar problems, the certainty of his weakness would be more apparent. The cycle principle of test design provides for this difficulty and if used in a modified form would improve these tests for diagnostic purposes.

The test material was arranged in approximate order of difficulty and given under time-limits which were thought sufficient except for the very slow pupils. From the results of about one thousand returns each problem was given a weighted value according to the proportion-of-pupils-solving method. Tentative standards and P. E. values for the problems were then obtained. Inspection of these P. E. values shows that they increase as the problems become more complex in each test, but that the differences are relatively slight. The fractional values, moreover, are very tedious to handle. Recent testing-results suggest that weights of this type are of doubtful value. For a fair-sized class the correlations between weighted scores and scores obtained by giving each problem the value 1 often run higher than .99. The argument that an individual score is more accurately obtained by weighted values is again open to question until the probable errors (as a measure of reliability) of such scores are obtained and comparisons made. The same considerations apply to the

¹ HARL ROY DOUGLASS, *The Derivation and Standardization of a Series of Diagnostic Tests for the Fundamentals of First Year Algebra*. "University of Oregon Publications," Vol. I, No. 8. Eugene, Oregon: University of Oregon Press, 1921. Pp. 48.

zero point which has a P. E. like any other value—in fact, the largest of all. It thus appears that the whole question of reliability is exceedingly important in this connection and will doubtless receive greater consideration as Mr. Douglass' excellent material is put into use.

KARL J. HOLZINGER

Recent compilations of word lists.—Despite the fact that a number of extensive studies have been made and various methods employed in the effort to determine word lists which might with some degree of certainty define the task of the schools so far as the individual's knowledge of words is concerned, there still remains a feeling that the best information which available lists afford may be modified by additional tabulations. Two recent studies have undertaken more clearly to indicate the utility of existing lists by supplementing these and by showing the relative importance of the words they contain.

One¹ of these studies has sought to determine the words commonly used by individuals in various callings. To this end, an analysis was made of 3,723 letters written by adults engaged in more than thirty-five different occupations and callings. These were classified into six principal groups, intending to distinguish "the range and frequency of words used by (1) those especially trained for the callings in which they are engaged, (2) those in semi-professional or semi-skilled, gainful occupations, which in general require no special preparation or training, (3) domestics and those not directly engaged in professional or gainful occupations" (p. 21). These classes are designated "professional, business, domestic, miscellaneous, personal, and farmers."

The total tabulations included 9,223 different words. Of these, it is noted, 14 constitute one-fourth of the total number of 361,184 running words included in the study, 77 comprise one-half, while 442 make up three-fourths of the total number. In selecting a final list which is assumed to represent the words commonly used by individuals of the six specified groups, all words were included that occurred in three or more groups with a frequency of at least five. The resulting list comprises 3,087 different words.

A comparison is drawn between this list and Pryor's list of 1,478 words described as a minimal list for pupils of Grades II-VIII. Thus, it is shown that of the words not found in the Pryor list, 207 occurred in each of four of these groups with a total frequency of 20 or more. Thirty words of the Pryor list, on the other hand, were not shown by this study to be of common use among the classes of individuals considered. The evidence, then, is that "neither of the two lists is complete, and that not all simple and familiar words are revealed by this method, even when a large amount of material is scored and

¹ WILLIAM NICLAUS ANDERSON, *Determination of a Spelling Vocabulary Based upon Written Correspondence*. "University of Iowa Studies in Education," Vol. II, No. 1. Iowa City: University of Iowa, 1921. Pp. 66.